

WHAT IS CLAIMED IS:

1. A magnetic recording and reading device having a transfer rate of not less than 50 MB/s comprising:
a magnetic recording medium having an absolute value of normalized noise coefficient per recording density of not more than 2.5×10^{-8} (μVrms) (inch) (μm) $^{0.5}$ / (μVpp);

wherein said magnetic head is provided with a reading element including a giant magnetoresistance effect element or a thin film having tunneling-magnetoresistance effect, with an effective track width of not more than 0.9 μm , and performs reading of magnetic information at an areal density of not less than 5 Gb/in 2 , and

wherein said magnetic recording medium comprises (a) a magnetic layer having predetermined refined crystal grains having reduced exchange interaction, the magnetic layer containing at least one metal element selected from the group consisting of Co, Fe and Ni as a primary component, and at least two elements selected from a second group consisting of Cr, Mo, W, V, Nb, Ta, Ti, Zr, Hf, Pd, Pt, Rh, Ir and Si, and at least one element selected from a third group consisting La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Bi, Sb, Pb, Sn, Ge and B, and (b) a non-magnetic layer containing at least one kind of element selected from the group consisting of Cr, Mo, W, V, Nb, Ta, Zr, Hf, Ti, Ge, Si, Co, Ni, C, B, Pt, Ru and N.

2. A magnetic recording and reading device according to claim 1, wherein said magnetic head has a magnetic pole length of not more than 50 μm .

3. A magnetic recording and reading device according to claim 1, wherein said magnetic layer of said magnetic medium is an amorphous material.